Attorney Docket No. ATI-207

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

A13

Re:	Application of:	David S. BREED et al.
	Serial No.:	09/437,535
	Filed:	November 10, 1999
	For:	Method and Apparatus for Controlling Deployment of a Side Airbag
	Examiner:	Toan C. To
	Art Unit:	3619

APPEAL BRIEF UNDER 37 C.F.R. §1.192(a)

Assistant Commissioner for Patents
Washington, D.C. 20231

January 19, 2001

Sir:

On December 21, 2000, appellants, through their attorney, appealed from the final rejections of claims 1-3, 7, 8, 10-12, 16-22, 24, 25, 28-30, 32, 33 and 36-40 set forth in an Office Action mailed by the U.S. Patent and Trademark Office on September 21, 2000 for the above-identified application.

This Appeal Brief is submitted in triplicate by the appellants, through their attorney, in support of the patentability of claims 1-3, 7, 8, 10-12, 16-22, 24, 25, 28-30, 32, 33 and 36-40 of this application. For the reasons set forth below, it is believed that the rejections in the Office Action dated September 21, 2000 should be reversed.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to "Assistant Commissioner for Patents, Washington, D.C. 20231" on January 19, 2001.

Brian Roffe, Esq.

By:

01/24/2001 ABSITON 00000069 500256 09437535
01 FC:220 310.00 CH

A. REAL PARTY IN INTEREST

The real party in interest of the above-identified application is Automotive Technologies International, Inc. by virtue of an assignment of 100% interest in the application by the inventor-appellants.

B. RELATED APPEALS AND INTERFERENCES

At this time, there are no related appeals or interferences.

C. STATUS OF CLAIMS

Claims 1-40 are pending in this application and claims 1-3, 7, 8, 10-12, 16-22, 24, 25, 28-30, 32, 33 and 36-40 are rejected. Claim 4-6, 9, 13-15, 23, 26, 27, 31, 34 and 35 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form. Appellants are therefore appealing the final rejections of claims 1-3, 7, 8, 10-12, 16-22, 24, 25, 28-30, 32, 33 and 36-40.

Claim 1 is an independent claim upon which rejected claims 2, 3, 7, 8 and 37 depend directly or indirectly, claim 10 is a second independent claim upon which rejected claims 11, 12, 16-19 and 38 depend directly or indirectly, claim 20 is a third independent claim upon which rejected claims 21, 22, 24 and 25 depend directly or indirectly, claim 28 is a fourth independent claim upon which rejected claims 29, 30, 32, 33 and 36 depend directly or indirectly, claim 39 is a fifth independent claim and claim 40 is a sixth independent claim.

The text of the claims on appeal is found in Appendix 1.

D. STATUS OF AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTIONS

After the final Office Action mailed on September 21, 2000, an Amendment Under 37 C.F.R. §1.116 was filed on November 14, 2000. In an Advisory Action mailed November 28, 2000, the Examiner indicated that this Amendment would be entered upon timely submission of a Notice of Appeal and Appeal Brief with the requisite fees.

A Notice of Appeal was filed December 27, 2000.

E. SUMMARY OF THE INVENTION

The invention relates to arrangements and methods for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash. A side airbag is an airbag mounted in a position to deploy between the side of the vehicle and the normal seating position of occupants

of the vehicle. For example, the airbag may be arranged in a module housing in a door of the vehicle, in a ceiling over the door or at the edge of the seat.

Prior to the invention, deployment of such side airbags was usually initiated based on the severity of a crash involving the vehicle without consideration of the presence of an occupant and/or the position of the occupant. By contrast, in the invention, deployment of a side airbag is controlled based on the presence and/or position of the occupant.

For example, in the embodiment of claims 1 and 20, the position of at least a part of the occupant is determined and deployment of the side airbag is controlled based on the determined position of the occupant. With reference to Fig. 9, the position of the occupant may be determined by an ultrasonic transducer 330 mounted in the door adjacent the side airbag system. The ultrasonic transducer 330 determines the distance between the side of the door and the side of the occupant by measuring the time in which waves of a known frequency travel between the transducer 330 and the occupant. In addition to or instead of the position, the ultrasonic transducer 330 can determine the presence of an object in the seat. This embodiment is set forth in claims 10 and 28.

The embodiment of claim 39 is directed to an arrangement comprising at least two cooperating components, e.g., an ultrasonic transmitter/receiver pair, arranged to provide a signal indicative of the position of the occupant, and a control circuit coupled to the components for controlling deployment of the side airbag based on the position of the occupant. At least a portion of the arrangement resides on the side door of the vehicle, e.g., the ultrasonic transmitter/receiver pair as represented by transducer 330 in Fig. 9.

The embodiment of claim 40 is directed to an arrangement comprising at least two cooperating components arranged to provide a signal indicative of the presence of the occupant in the seat, and a control circuit coupled to the components for controlling deployment of the side airbag based on whether an occupant is present in the seat. At least a portion of the arrangement resides on the side door of the vehicle, e.g., an ultrasonic transmitter/receiver pair as represented by transducer 330 in Fig. 9.

F. ISSUES ON APPEAL

The issues presented on this appeal are as follows:

1. Whether Kaji et al. (U.S. Pat. No. 5,222,761) inherently discloses all of the steps of method claims 20-22, 24, 25, 28-30, 32 and 33.

2. Whether it would have been obvious to one of ordinary skill in the art at the time the invention was made, or even possible, to modify White et al. (U.S. Pat. No. 5,071,160) to include all of the steps of method claims 20-22, 24, 25, 28-30, 32 and 33.

3. Whether it would have been obvious to one of ordinary skill in the art at the time the invention was made, or even possible, to modify a vehicle having an arrangement of Kaji et al. to include an ultrasonic transducer, processor and control circuit as purportedly taught by White et al. and thereby arrive at the embodiments of the invention set forth in claims 1-3, 7, 8, 10-12, 16-19 and 36-40.

G. GROUPING OF CLAIMS

Claims 1-3, 7, 8, 10-12, 16-22, 24, 25, 28-30, 32, 33 and 36-40 do not stand or fall together. Rather, claims 1-3 and 8 stand or fall together (a first group), claims 7, 16, 37 and 38 stand or fall together (a second group), claims 10-12 and 17-19 stand or fall together (a third group), claims 20-22 and 28-30 stand or fall together (a fourth group), claims 24, 25, 32 and 33 stand or fall together (a fifth group) and claims 36, 39 and 40 each stand alone. It is believed that claims 1-3 and 8 are separately patentable, claims 10-12 and 17-19 are separately patentable, claims 7, 16, 37 and 38 are separately patentable, claims 20-22 and 28-30 are separately patentable, claims 24, 25, 32 and 33 are separately patentable and claims 36, 39 and 40 are each separately patentable.

H. ARGUMENT

1. The Rejections

Claims 1-3, 7, 8, 10-12, 16-19 and 36-40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kaji et al. in view of White et al. The Examiner takes the position that it would have been obvious to modify a vehicle having the arrangement of Kaji et al. to include means for determining the position of at least a part of the occupant and a control circuit coupled to the determining means for controlling deployment of the airbag.

Claims 20-22, 24, 25, 28-30, 32 and 33 are rejected under 35 U.S.C. §102(b) as being anticipated by Kaji et al. or, in the alternative, under 35 U.S.C. §103(a) as being obvious over White et al. The Examiner takes the position that Kaji et al. anticipates the claimed method and that if not anticipated, it would have been obvious to modify White et al. to include the claimed method.

2. Applicable Law

Under 35 U.S.C. §102, in order to anticipate an invention set forth in a claim, each and every element as set forth in the claim must be found, either expressly or inherently described, in Kaji et al. (See *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628,631, 2 USPQ2d 1051, 1053 (Fed. Cir.

1987)). The identical invention must be shown in as complete detail as is contained in the claim. (See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913,1920 (Fed. Cir. 1989).

The basis of a rejection under 35 U.S.C. §103(a) is that it would have been obvious to one skilled in the art at the time the invention was made to combine one reference (or a specific feature in that reference) with another reference and arrive at the applicant's invention. In rejecting claims under 35 U.S.C. §103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443,1445, 24 USPQ2d 1443,1444 (Fed. Cir. 1995). A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art, *In re Rickaert*, 9 F.3d 1531 (Fed. Cir. 1993). It is well-settled that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, "absent some teaching or suggestion supporting the combination." *In re Bell*, 26 USPQ2d 1529,1531 (Fed. Cir. 1993); *In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1598; *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572,1577, 221 USPQ 929,933 (Fed. Cir. 1984). The teachings of the references can be combined only if there is some suggestion or incentive to do so. *Id.*

3. Prior Art

Kaji et al.

Kaji et al. show an airbag restraint system including a side airbag, i.e., an airbag disposed at each of the doors and which are designated 4FR, 4FL, 8RR and 8RL. Acceleration sensors 30FR and 30FL are disposed at the lateral sides of the vehicle to detect a directional impact and when the vehicle is crashed at one lateral side, the airbag at the impacted side is inflated, along with a center airbag 11. Thus, Kaji et al. uses an acceleration sensor to determine when the crash into the lateral side of the vehicle is of such a magnitude to require deployment of the lateral side airbag.

A stated objective of Kaji et al. is to prevent vehicle passengers who are seated side by side from impacting with each other in the event of a side direction vehicle crash (col. 1, lines 42-46). This objective is realized by the provision of the center airbag 11 which is interposed between the passengers during a crash and thereby prevents the passengers from contacting one another (see Figs. 4 and 6).

Kaji et al. does not teach or suggesting deploying the side airbag based on the position of the occupant. Thus, one problem of the airbag system of Kaji et al. is that when the occupant is out-of-position for deployment of the side airbag, e.g., leaning on the side door, the airbag 4FR, 4FL, 8RR or 8RL will nevertheless deploy (upon the acceleration sensors detecting the vehicle collision at the sides of the vehicle) and potentially cause greater harm to the occupant than if the airbag had not deployed.

White et al.

White et al. shows an apparatus for actuating a passenger safety restraint such as a steering wheel-mounted airbag 16 in which an ultrasonic sensor 26 senses the position assumed by the passenger relative to various fixed interior structures of the vehicle, such as the vehicle's steering wheel 18, dashboard 28 and knee bolsters 30 (col. 4, lines 42-46). A control module 36 calculates the likely effectiveness of deployment of the air bag 16 mounted on the steering wheel 18 in preventing contact between the passenger and the fixed interior structures given the sensed position of the passenger as determined by the ultrasonic sensor 26 and if this falls below a threshold value, control module 36 illuminates a signal lamp 38.

4. Argument

Issue 1

The apparatus of Kaji et al. does not inherently perform the methods set forth in claims 20-22, 24, 25, 28-30, 32 and 33 in its normal and usual operation.

In the embodiments of claims 20-22, 24 and 25, the position of at least a part of the occupant is determined and deployment of the side airbag is controlled based on the determined position of the occupant. The position may be determined by receiving waves from a space above a seat portion of the seat and generating a signal representative of the position of the occupant based on the received waves (claim 21). To this end, a transducer may be arranged in a door of the vehicle to receive the waves from the space above the seat portion of the seat (claims 24 and 25).

In Kaji et al., deployment of the airbag is controlled based on the severity of the crash as determined by the acceleration sensors 30FR and 30FL (see col. 3, lines 31-37). Kaji et al. does not disclose any sensor or other means for determining the position of the occupant, e.g., a wave-receiving transducer. As such, airbag deployment may occur when the occupant is out-of-position, e.g., leaning against the door, and liable to be injured by the deployment of the airbag.

Thus, it is not possible for the apparatus of Kaji et al. to perform all of the steps of claims 20-22, 24 and 25.

In the embodiments of claims 28-30, 32 and 33, the presence of the occupant is determined and deployment of the side airbag is controlled based on the presence or absence of the occupant. The occupant's presence may be determined by receiving waves from a space above a seat portion of the seat and generating a signal representative of the position of the occupant based on the received waves (claim 29). To this end, a transducer may be arranged in a door of the vehicle to receive the waves from the space above the seat portion of the seat (claims 32 and 33).

In Kaji et al., deployment of the airbag is controlled based on the severity of the crash as determined by the acceleration sensors 30FR and 30FL. Although Kaji et al. mentions a sensor 33 for detecting a condition that the airbags should not be operated, there is no express disclosure that this sensor is a sensor for determining the presence or absence of the occupant, such as a wave-receiving transducer. Further, it is respectfully submitted that such a sensor would not be a sensor for detecting the presence or absence of an occupant because the sensor avoids an erroneous operation of all of the airbags (col. 3, lines 56-59). Since Kaji et al. is operable when the vehicle is being driven, it presupposes the presence of a driver for which deployment of at least one airbag would be required. Since sensor 33 detects a condition when all of the airbags should not be operated, it clearly is not an occupant presence determination sensor nor would it be obvious to make sensor 33 an occupant presence determination sensor.

It is important to note that at the time the invention was made, airbags were typically set to deploy without regard to the presence of an occupant, i.e., presence sensors were not incorporated into airbag control mechanisms when first introduced into vehicles. Thus, in the absence of a passenger, the passenger-side airbag of Kaji et al. would deploy in a crash.

Furthermore, with respect to claims 24, 25, 32 and 33, it is respectfully submitted that it would not have been obvious at the time the invention was made to mount a transducer capable of receiving waves in a door of the vehicle. Although the acceleration sensors 30FR and 30 FL are arranged in the doors of the vehicle, the acceleration sensors are not wave-receiving transducers. Kaji et al. thus lacks any teaching or suggestion of placing wave-receiving transducers in a door of the vehicle for the purpose of determining the position or presence of the occupant.

Thus, it is not possible for the apparatus of Kaji et al. to perform all of the steps of claims 28-30, 32 and 33.

In view of the foregoing, the apparatus of Kaji et al. does not expressly or inherently perform all of steps of claims 20-22, 24, 25, 28-30, 32 and 33 and cannot anticipate the embodiments of the invention set forth in these claims.

Issue 2

It would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify White et al. to include all of the steps of method claims 20-22, 24, 25, 28-30, 32 and 33 because White et al. does not disclose an essential part of the structure of the embodiments of the invention set forth in these claims.

More particularly, White et al. does not disclose a side airbag, i.e., an airbag arranged to deploy along the side of the vehicle between the side of the vehicle and the occupant to prevent the occupant from impacting the door of the vehicle in a crash. The preamble of claims 20 and 28 explicitly limits the claims to methods for controlling deployment "of a side airbag" from an airbag module to protect an occupant in a seat of a vehicle in a crash. Further, in the body of the claims, the step of controlling deployment "of the side airbag" is set forth. Thus, the preamble of the claims should be entitled to consideration when analyzing patentability of the claims, namely, the limitation of the deployment control method being for a side airbag.

White et al. shows an airbag 16 mounted in the steering wheel 18 and a control circuit 12 for identifying a crash condition requiring deployment of airbag 16. By virtue of its presence on the steering wheel 18, airbag 16 is designed to deploy to prevent the driver from impacting the steering wheel and other structures in the vehicle forward or in front of the driver.

Airbag 16 is undeniably not a side airbag. Moreover, modification of the system of White et al. for use with a side airbag would fundamentally alter the essence of the White et al. invention and therefore would not be obvious to one skilled in the art. White et al. is designed to enable a determination of the position of the passenger relative to fixed interior structures in the same orientation as the airbag, i.e., in front of the passenger, as to enable the deceleration rate of the passenger relative to the fixed interior structures to be optimized. By contrast, the detection of the position of a passenger for use with a side airbag is primarily for the purpose of preventing deployment of the airbag when an occupant is leaning against the deployment door of the airbag.

Furthermore, with respect to claims 24, 25, 32 and 33, it is respectfully submitted that White et al. does not include a wave-receiving transducer in a door of the vehicle and further that the placement of a wave-receiving transducer in a door of the vehicle is not an obvious modification of White et al. The ultrasonic sensor 26 in White et al. is arranged in front of the passengers and thus provides an indication of the distance between the passenger and the fixed interior structures in front of the passenger. If the receiver was placed in the door of the vehicle, it could not provide an indication of the distance between the passenger and the fixed interior structures in front of the passenger and thus would not enable the system of White et al. to accomplish its intended objective. As such, placement of the receiver of White et al. in a door of the vehicle would not be an obvious modification to one of ordinary skill in the art.

In sum, White et al. does not disclose all of the structure necessary to perform the claimed functions set forth in claims 20-22, 24, 25, 28-30, 32 and 33 in view of the absence of a side airbag and therefore cannot render obvious the embodiments of the invention set forth in these claims.

In view of the arguments above, it is respectfully submitted that the Examiner's rejection of claim 20-22, 24, 25, 28-30, 32 and 33 under 35 U.S.C. §102(b) as being anticipated by Kaji et al. or, in the alternative, under 35 U.S.C. §103(a) as being obvious over White et al. have been overcome and should be removed.

Issue 3

There is no teaching or suggestion provided by Kaji et al. or White et al. supporting the proposed combination of references to render claims 1-3, 7, 8, 10-12, 16-19 and 36-40 unpatentable, and therefore the combination can only be made with the use of hindsight reconstruction, which is impermissible.

At the time the invention was made, one skilled in the art would not have considered controlling deployment of a side airbag based on the position of the occupant or a part thereof. Side airbags and steering-wheel mounted or frontal airbags are quite different in nature and it would not have been obvious to one skilled in the art to control deployment of a side airbag based on the position of the occupant in light of the disclosure in White et al. to control deployment of a frontal airbag based on the position of the occupant relative to fixed interior structures.

According to White et al., the position of the passenger before operation of the occupant restraint is used to determine the rate at which the passenger must be decelerated relative to the fixed interior structures by the occupant restraint in order to prevent injurious contact therewith (col. 1, lines 47-53). There is thus a problem when the passenger is decelerated at a lower rate than required based on his or her position relative to the fixed interior structures because the passenger will then strike the fixed interior structures and suffer an injury (see col. 1, lines 53-62).

However, the main problem arising from use of a side airbag is not related to optimizing the deceleration of the passenger to prevent contact between the passenger and fixed interior structures. Rather, as set forth at page 2, lines 27-29 of the application, the most significant problem associated with deployment of a side airbag is when a child or other person is leaning against the deployment door of the airbag. In this case, the deployment of the airbag at a high velocity will exert a large force against the child, propelling the child toward the opposite door and very likely causing significant injury. The overriding concern for control of a side airbag is thus not to decelerate the child at the optimum deceleration rate to prevent contact with fixed interior structures but rather to prevent deployment if the child is leaning against the deployment door.

In view of the differences between the main objectives of a position determining system for use with a frontal airbag and a side airbag, and the fact that White et al. is intended to solve a particular

problem arising with the frontal airbag, one skilled in the art would not be motivated to apply the disclosure in White et al. of controlling deployment of a frontal airbag based on the position of the occupant for a side airbag as suggested by the Examiner.

In the absence of such motivation, as well as the absence of any suggestion in White et al. to apply the system described therein for use with a side airbag, it would not have been obvious at the time the invention was made to modify a vehicle having an arrangement of Kaji et al. to include determining means for determining the position of at least a part of an occupant and a control circuit for controlling deployment of a side airbag based on the determined position of the occupant as set forth in independent claim 1.

Similarly, it would not have been obvious at the time the invention was made to modify a vehicle having an arrangement of Kaji et al. to include cooperating components arranged to provide a signal indicative of the position of at least a part of an occupant and a control circuit for controlling deployment of a side airbag based on the position of the occupant as set forth in independent claim 39.

With respect to independent claim 10, White et al. does not teach or suggest using a wave-receiving receiver to determine whether an occupant is present in the seat. Rather, White et al. mentions a pyrotechnic sensor 24 for sensing the presence of a passenger.

With respect to independent claim 40, White et al. does not teach or suggest using at least two cooperating components to determine whether an occupant is present in the seat. Rather, White et al. mentions the pyrotechnic sensor 24 for sensing the presence of a passenger.

Kaji et al. also does not disclose the features of claims 10 and 40.

In view of the absence of the features of claims 10 and 40 in Kaji et al. and White et al., one could not combine these references and arrive at the invention of independent claims 10 and 40, and claims 11, 12 and 16-19 which depend from claim 10.

With respect to claims 7, 16, 37 and 38, it is respectfully submitted that it would not have been an obvious matter of design choice to mount a receiver in a door of the vehicle. The ultrasonic sensor 26 in White et al. is arranged in front of the passengers and thus provides an indication of the distance between the passenger and the fixed interior structures in front of the passenger. If the receiver was placed in the door of the vehicle, it could not reliably provide an indication of the distance between the passenger and the fixed interior structures in front of the passenger and thus would not enable the system of White et al. to accomplish its intended objective. As such, placement of the receiver of White et al. in a door of the vehicle would not only not be a matter of design choice but would not be an obvious modification to one of ordinary skill in the art.

With respect to claim 36, Kaji et al. and White et al. do not disclose determining both the presence and position of an occupant in a seat for the purpose of controlling deployment of a side airbag based on the presence and position of the occupant. Kaji et al. does not disclose determining the presence or position of the occupant whereas White et al. does not disclose using the position and presence of the occupant for deploying a side airbag.

In view of the arguments presented above, it is respectfully submitted that the Examiner's rejection of claims 1-3, 7, 8, 10-12, 16-19 and 36-40 as being unpatentable over Kaji et al. in view of White et al. has been overcome and should be removed.

I. CONCLUSION

Kaji et al. does not disclose determining the position of an occupant in a vehicle and using that determination to control deployment of a side airbag. White et al. does not disclose a side airbag or any wave-receiving transducers arranged in a door of the vehicle for the purpose of determining the position and/or presence of an occupant and using such determination to control deployment of a side airbag. Kaji et al. and White et al. thus do not include all of the features of the rejected claims and otherwise lack the required teaching or suggestion of the desirability of a modification of Kaji et al. in view of White et al. to enable one skilled in the art to arrive at the embodiments set forth in the rejected claims.

Therefore, upon reason and authority, it is respectfully requested that the Board reverse all of the final rejections.

The fee of $310.00 to cover the Official Fee for Filing a Brief in Support of Appeal should be charged to Deposit Account No. 50-0266.

Respectfully submitted,

By: _____
Brian Roffe
Reg. No. 35,336
Attorney for Appellants

Brian Roffe, Esq.
366 Longacre Avenue
Woodmere, New York 11598-2417
Tel.: (516) 295-1394
Fax: (516) 295-0318

APPENDIX 1

1. An arrangement for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash comprising

determining means for determining the position of at least a part of the occupant, and

a control circuit coupled to said determining means for controlling deployment of the side airbag based on the determined position of the at least a part of the occupant.

2. The arrangement of claim 1, wherein said determining means comprise at least one receiver adapted to receive waves from a space above a seat portion of the seat and a processor coupled to said at least one receiver for generating a signal representative of the position of the at least a part of the occupant based on the waves received by said at least one receiver.

3. The arrangement of claim 2, wherein said at least one receiver is an ultrasonic transducer.

7. The arrangement of claim 2, wherein said at least one receiver is mounted in a door of the vehicle.

8. The arrangement of claim 2, wherein said at least one receiver is mounted on or adjacent to the airbag module.

10. An arrangement for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash comprising

determining means for determining whether an occupant is present in the seat, and

a control circuit coupled to said determining means for controlling deployment of the side airbag based on whether an occupant is present in the seat.

11. The arrangement of claim 10, wherein said determining means comprise at least one receiver adapted to receive waves from a space above a seat portion of the seat and a processor coupled to said at least one receiver for generating a signal representative of the presence or absence of an occupant in the seat based on the waves received by said at least one receiver.

12. The arrangement of claim 11, wherein said at least one receiver is an ultrasonic transducer.

16. The arrangement of claim 11, wherein said at least one receiver is mounted in a door of the vehicle.

17. The arrangement of claim 11, wherein said at least one receiver is mounted on or adjacent to the airbag module.

18. The arrangement of claim 10, wherein said control circuit is structured and arranged to suppress deployment of the side airbag if an occupant is not present.

19. The arrangement of claim 10, wherein said determining means determine a position of at least a part of the occupant when an occupant is in the seat and said control circuit is structured and arranged to control deployment of the side airbag based on the determined position of at least a part of the occupant.

20. A method for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash, comprising the steps of:

determining the position of at least a part of the occupant, and

controlling deployment of the side airbag based on the determined position of the at least a part of the occupant.

21. The method of claim 20, wherein the step of determining the position of at least a part of the occupant comprises the steps of receiving waves from a space above a seat portion of the seat and generating a signal representative of the position of the at least a part of the occupant based on the received waves.

22. The method of claim 21, wherein the step of receiving waves comprises the step of arranging an ultrasonic transducer in the vehicle in a position to receive waves from the space above the seat portion of the seat.

24. The method of claim 21, wherein the step of receiving waves comprises the step of mounting a transducer capable of receiving waves in a door of the vehicle in a position to receive waves from the space above the seat portion of the seat.

25. The method of claim 21, wherein the step of receiving waves comprises the step of mounting a transducer capable of receiving waves in a door of the vehicle on or adjacent to the airbag module in a position to receive waves from the space above the seat portion of the seat.

28. A method for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash, comprising the steps of:

determining whether an occupant is present in the seat, and

controlling deployment of the side airbag based on the presence or absence of an occupant in the seat.

29. The method of claim 28, wherein the step of determining whether an occupant is present in the seat comprises the steps of receiving waves from a space above a seat portion of the seat and generating a signal representative of the presence or absence of an occupant in the seat based on the received waves.

30. The method of claim 29, wherein the step of receiving waves comprises the step of arranging an ultrasonic transducer in the vehicle in a position to receive waves from the space above the seat portion of the seat.

32. The method of claim 29, wherein the step of receiving waves comprises the step of mounting a transducer capable of receiving waves in a door of the vehicle in a position to receive waves from the space above the seat portion of the seat.

33. The method of claim 29, wherein the step of receiving waves comprises the step of mounting a transducer capable of receiving waves in a door of the vehicle on or adjacent to the airbag module in a position to receive waves from the space above the seat portion of the seat.

36. The method of claim 28, further comprising the steps of:

determining a position of at least a part of the occupant when an occupant is in the seat, and

controlling deployment of the side airbag based on the determined position of at least a part of the occupant.

37. A combination of a vehicle and the arrangement of claim 1, the vehicle having a side door, at least a portion of the arrangement residing on the side door of the vehicle.

38. A combination of a vehicle and the arrangement of claim 10, the vehicle having a side door, at least a portion of the arrangement residing on the side door of the vehicle.

39. A vehicle including a side door and an arrangement for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash, the arrangement comprising

at least two cooperating components arranged to provide a signal indicative of the position of at least a part of the occupant, and

a control circuit coupled to said components for controlling deployment of the side airbag based on the position of the at least a part of the occupant,

at least a portion of the arrangement residing on the side door of the vehicle.

40. A vehicle including a side door and an arrangement for controlling deployment of a side airbag from an airbag module to protect an occupant in a seat of a vehicle in a crash, the arrangement comprising

at least two cooperating components arranged to provide a signal indicative of the presence of the occupant in the seat, and

a control circuit coupled to said components for controlling deployment of the side airbag based on whether an occupant is present in the seat,

at least a portion of the arrangement residing on the side door of the vehicle.